ORIGINAL ARTICLE

STUDY OF EARLY SURGICAL INTERVENTION IN APPENDICULAR MASS

Muhammad Ayub Jat, Muhammad Rafique Memon, Saima Arshad, Ali Gohar Bozdar, Roshan Ali Solangi

Department of Surgery, Ghulam Muhammad Maher Medical College Hospital, Sukkur, Pakistan

ABSTRACT

Background: Acute appendicitis may complicate to appendicular mass. It is conventionally treated conservatively followed by interval appendicectomty. This study was conducted to determine the feasibility and safety of early appendicectomy in patients with appendicular mass. **Methods:** This comparative study was conducted at Department of Surgery, Unit-I, Ghulam Muhammad Maher Medical College Teaching Hospital, Sukkur, from July 2008 to June 2011. Sixty patients with appendicular mass were included. They were divided into two groups, A & B with 30 patients each regardless of age and sex. Early appendicectomy was performed in group A within 24 hours of admission while group B patients were managed conservatively followed by interval appendicectomy. Evaluation included operative and post-operative complications, operation time, and total hospital stay. **Results:** Out of 60 patients, 40 were males and 20 females, with male to female ratio of 2:1. Age range was 12-50 years, mean 24+9.25 years. Early surgical intervention was done in 30 patients. In these appendicular mass without pus formation was detected in 24(80%), localized pus collection along with mass in 4(13.33%) and frank appendicular abscess in 2(6.66%) patients. Mean hospital stay was 4.50±4.86 days. Post-operative complications such as superficial wound infection occurred in 5(16.66%), deep wound infection in 3(10%), incisional hernia in 1(3.33%) and faecal fistula in 1(3.33%) patient. Two (6.66%) cases of residual abscess were found in this study managed by antibiotics and ultrasound guided drainage. Treatment failure by conservative means, patient compliance, readmission and overall expenses were main limitations in group B patients. **Conclusion:** Early surgical intervention in patients with appendicular mass is feasible and safe as compared to conservative approach.

KEY WORDS: Appendicitis, Appendicular mass, Early surgical intervention.

INTRODUCTION

Acute appendicitis remains the commonest cause of acute abdomen in teenagers requiring early surgical intervention[1]. Most patients are presenting late in the course of acute appendicitis, complicated by the development of an inflammatory mass in right iliac fossa. This inflammatory mass is composed of the inflamed appendix, omentum and bowel loops. The treatment of appendicular mass is controversial and there are several management options[2]. Traditionally these patients are managed conservatively followed by interval appendicectomy 4-6 weeks later, believing that an early appndicectomy in these cases is hazardous, time consuming and may lead to life threatening complications such as faecal fistula. Initial conservative approach claims lower rate of complication compared to early operative approach,[3] but some studies favoring early appendicectomy claim an early recovery and complete cure during the primary admission[4,5] and avoiding the need for readmission for interval appendicectomy. This study was designed to evaluate the feasibility and safety of early appendicectomy in appendicular mass.

MATERIAL AND METHODS

This prospective comparative study was conducted at department of surgery, GMC Teaching Hospital Sukkur, from July 2008 to June 2011.

Inclusion criteria were (I) both male and female patients with 12-50 years of age (II) diagnosed to have acute appendicitis complicated by appendicular mass. (Diagnosed by clinical abdominal examination, Ultrasound examination). Exclusion criteria were (I) age below 12 years and more than 50 years (II) symptoms less than 48 hours duration **(**III**)** immuno compromised patients.

Total 60 patients with an appendicular mass were included in this study. 48 patients came to hospital directly and 12 patients referred to hospital after a conservative treatment in another hospital for duration of 2-5 days. Most of the patient present with symptoms of right lower abdominal

pain and anorexia while some have vomiting, fever, abdominal distension and constipation. The patients were conveniently divided into group A and group B. Group A patients were treated by early appendicectomy within 24 hours of admission while Group B patients were initially managed conservatively by hospitalization with intravenous fluids, broad spectrum antibiotics and analgesics. The progress of the mass was observed and the vitals were recorded to monitor the response to conservative treatment. These patients were discharged after complete resolution of mass and readmitted after 06 weeks for interval appendicectomy.

On admission, all of these patients were clinically evaluated and finding recorded on proforma then investigated by blood chemistry, ultrasound of abdomen and urine analysis.

In our study diagnosis of appendicular mass was clinical in (45 from 60 (75%) patients. Ultrasound of abdomen detected appendicular mass in another 9 (15%) patients and appendicular abscess in 6 patients from patients diagnosed with appendicular mass. In the remaining 6 (10%) patients the mass was detected intra-operatively. After preliminary investigations patients under went operation within 24 hours of admission in group A patients.

Informed consent was taken and both treatment options were explained to every patient. Early surgical intervention in patients with appendicular mass done through open procedure; MC Burney incision was used. Dissection of the inflammatory mass from the surrounding healthy tissue and appendicectomy was done in group A patients. In case of appendicular abscess or collection a copious lavage and irrigation of the peritoneal cavity with normal saline and Pyodine solution was performed. A drain was kept in pelvis in patients with appendicular abscess & removed after 2-3 days. Patients stared oral fluids after 24 hours & discharged from hospital after 3-5 days. Antibiotics were given IV during the hospital stay (3rd generation cephalosporin 1g BD and metronidazole 500 mg) and then oral treatment of antibiotics for 5 days. Patients were followed-up up to three months period.

The variables recorded in both groups in our study included operative difficulties and complications, operating time, post-operative complications and hospital stay.

RESULT

In this study 60 patients were included, 40 males and 20 females with male to female ratio of 2:1. The age range was 12 to 50 years with mean 24+9.25 years.

In 30 patients of Group A, surgical approach was through Mc Burney incision but in 7 (23.33%) patients there was a need to extend Mc Burney incision by cutting muscle as the mass was large in size.

In 24 (80%) patients simple appendicular mass formed of bowel loops and omentum without pus formation was detected while in 4 (13.33%) patients localized pus collection in the mass and in 2 (6.66%) appendicular abscess was detected.

In all patients of Group A, appendix was removed but in 4 (13.33%) there was difficulty in identifying the appendix. During surgery adhesiolysis was performed by blunt dissection to reach the appendix but in 2 (6.66%) patients difficulty in adhesolysis was experienced. In 2 (6.66%) cases serosal tear to the terminal ileum or the ceacum during dissection was observed.

In Group A, superficial wound infection occurred in 5 (16.66%) patients while deep wound infection occurred in 3 (10%) patients in whom the operative finding was appendicular abscess. One patient developed low output intestinal or fecal fistula 8 days after appendectomy which was treated conservatively and closed spontaneously over a period of 5 weeks. Postoperative residual abscess developed in 2 (6.66%) patients managed by antibiotics and ultrasound guided drainage. Follow-up of patients revealed that 1 (2%) patient who had deep wound infection developed incisional hernia after 4 months.

Table 1: Per operative findings in both groups.

Operative findings/ complications	Group A (n=30)	Group B (n=30)
Simple mass	24(80%)	6(20%)
Perforated appendix	8(26.66%)	0
Localized pus collection	4(13.33%)	0
Appendicular abscess	2(6.66%)	0
Adhesions	6(20%)	14(46.66%)
Difficulty in localisation of appendix	4(13.33%)	7(23.33%)
Difficulty in adhesiolysis	2(6.66%)	8(26.66%)
Minor trauma to bowel	2(6.66%)	1(3.33%)
Bleeding	2(6.66%)	0

The mean operative time 82+18.56 min and the duration of hospital stay 4+0.25 days. All patients received intravenous antibiotics for 3 days and completed a 05 day course by oral medication.

In Group B, out of 30 patients treated conservatively 21 (70%) were successfully treated by interval appendicectomy, while in 7 (23.33%) patients we stopped the conservative treatment due to deteriorating condition of the patients and operated them with difficulty and more complications. Five of those patients had perforated appendix which led to the generalized peritonitis. Two patients were lost to follow-up and did not return for interval appendicectomy. Patients in Group B were hospitalized for 6-9 days during there first admission and for another 2-4 days for interval appendicectomy.

The pattern of operative findings and difficulties differed significantly in both groups. (Table 1) The pattern of post operative complications in both groups is shown in Table 2.

Table 2: Postoperative complications in both groups.

Postoperative complications	Group A n=30	Group B n=30
Superficial wound infection	5(16.66%)	4(13.33%)
Deep wound infection	3(10%)	2(6.66%)
Residual abscess	2(6.66%)	4(13.33%)
Faecal fistula	1(3.33%)	0
Wound dehiscence	4(13.33%)	2(6.66%)

The total operative time and post operative hospital stay were significantly shorter in Group A patients as shown in Table 3. The total hospital stay in Group A patients included only one hospital admission as compared to Group B patients who were admitted twice.

Table 3: Total operative time in both groups.

Total operative time	Group A (n=30	Group B (n=30)
30-60 min	20(66.66%)	4(13.33%)
60-90 min	7(23.33%)	9(30%)
90-120 min	3(10%)	17(56.66%)
Hospital stay	3-5 days	6-9 days

DISCUSSION

The treatment of appedicular mass is taking a turn from the traditional conservative approach followed by interval appendectomy to immediate appendectomy.[7,8] However this change is not widely accepted and a large number of surgeons still continue to adopt the same conservative approach.[9] The conservative treatment of patients with an appedicular mass is not always successful. Authors estimate that approximately 10–20% of such patients fail to respond and require a delayed and potentially more difficult appendectomy.[10,11] Moreover approximately 50% of patients may suffer a recurrence of their appendicitis/ appedicular lump following discharge from hospital. Major disadvantage of the conservative approach is a large number of patients refuse readmission for operation once their acute problem is solved. Another disadvantage is the chance of misdiagnosis (15%) as conditions such as intussusceptions' and carcinoma of caecum,[12] may be treated conservatively by mistake adding considerable morbidity. The conservative treatment comprises hospitalization, intravenous fluids, antibiotics, and a strict watch on vitals and general state of the patients.[13]

Early surgical intervention is known to be an effective alternative to conservative therapy as it considerably reduces the total hospital stay, and obviate the need for a second admission. This substantially reduces the total expanse.[14] Another advantage of early appendectomy includes a total curative treatment, minimal morbidity, early return to work and patient compliance. The results of our study are comparable to the results of the study by Samuel et al,[15] in which 34 patients underwent an appendectomy for appedicular mass, in all 34 (100%) patients had an identifiable appendix at operation. mean length of hospital stay after appendectomy was 4.8$\pm$0.4 days. 03 cases of deep wound infection was seen. No other post operative complications or significant sequelae were seen after early open appendectomy.

Samuel et al[15] stated that surgical intervention was beneficial over non operative management in their cohort of patients .edema and friability of the tissues did not affect the outcome in those treated with early surgical intervention and this is a result of careful and meticulous technique adopted during surgery.

Okune et al[6] in their similar study recorded that operative time was about 50 min on the average and wound suppuration occurred in 3/11 patients, no bowel injury or fecal fistula seen .similar result was seen in study by bahram et al[16] in which no intestinal perforation and no fecal fistula.

In the study of Malik et al stressed the feasibility and effectiveness of early appendectomy in appendicular mass and their result were consistent with a number of similar studies as Ghosh et al[17] and Samuel et al.

Erdogan et al[9] stated the most important criteria for immediate operation were a failure to respond to medical treatment and suspicion of malignancy. Wound infection; however remains common post operative complication in early appendectomy but the rate of wound infection is not so high as to preclude this early surgical intervention.

CONCLUSION

Early surgical intervention during the primary admission of patients with an appendicular mass is feasible, safe, and avoids the consequences of the misdiagnosis and mistreatment of other surgical conditions.

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Corresponding Author:

Dr. Muhammad Ayub Jat

House No: B-1457,

Tariq Road, Sukkur

E-mail: dr.ayubjat@yahoo.com